HIRAC Report

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1. Hazard Management Details – General	
This form relates to OHS Procedure – *Hazard Identification, Risk Assessment and Control (HIRAC)*	
School / Work Location:	**Ballarat Tech School (Fed College)**
Name of Person(s):	Liam Mudge
Date Conducted:	16/01/2024
Last Reviewed:	26/10/2023
Next Review Due:	January 2025

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Description of Use:	Summary of Key Risks:
The Ballarat Tech School (BTS) delivers a range of STEM curriculum projects, some of these activities may be hazardous to user's health if safety procedures and lab etiquette are not followed. This document assesses the risk involved with the operation of Micro and Very Small Remotely Operated Aircraft (RPA) using the following equipment and environments: • DJI Mini 2 Drones • Tello Edu Drones • Indoor Activities • Outdoor Activities This document covers the instruction of students in the safe use and operation of RPA for educational purposes where Ballarat Tech School Staff are supervising in Drone flight. Operation and instruction of all aircraft above "Very Small Remotely Operated Aircraft" to be conducted by adequately trained and licenced instructors. BTS will engage appropriate Third Parties where appropriate.	**(Refer to appropriate subsections)**

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Risk Assessment Matrix

Assessing OHS Risks

Risk assessments in matters of Occupational Health and Safety* are based on 2 key factors:

- The severity of any injury/illness resulting from the hazard(s), and
- The likelihood that the injury/illness will actually occur.

**Assessment of risk level based on likely severity and probability of harm*

		LIKELIHOOD			
		Very Unlikely Could happen, but probably never will	**Unlikely** Could happen, but very rarely	**Likely** Could happen sometime	**Very likely** Could happen any time
SEVERITY	Death or permanent disability	**MEDIUM**	**HIGH**	**EXTREME**	**EXTREME**
	Long-term illness or serious injury	**LOW**	**MEDIUM**	**HIGH**	**EXTREME**
	Medical attention and short-term incapacity	**VERY LOW**	**LOW**	**MEDIUM**	**HIGH**
	First aid needed	**VERY LOW**	**VERY LOW**	**LOW**	**MEDIUM**

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2. Documentation		
Relevant Legislation/Standards	**Y / N**	**Comments**
Key reference material:		• AS/NZS 3760:2022 In service safety inspection and testing of electrical equipment • VUAS Documentation and discussion • Civil Aviation Safety Authroity's Plain English guide: Micro • NSW Department of Primary Industries Operation of Unmanned Aerial Vehicles Task-Specific Risk Assessment for NSW Department of Primary Industries Emergency Management Unit Biosecurity and Food Safety • Colorado School of Mines UAS_Checklist_PrePostFlight_Draft • Victorian DEET Drones Policy • https://www.legislation.gov.au/Details/F2021C01233 • Civil Aviation Safety Regulations 1998 • Part 101 (Unmanned Aircraft and Rockets) Manual of Standards 2019 (As Amended)

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3. Hazards				
Hazards Inspected	**Initial Risk**	**Description of Risk**	**Control Measures**	**Residual Risk**
Outdoor Airborne Activities. • Improper maintenance leads to failure of critical system(s) including the control system. • Lack of operator competency leads to unsafe practice and/or illegal operations.	Medium Medium	• Operation of Remotely Piloted Aircraft my result in exposure of hazardous environment to people, property, or wildlife. • Failure of RPA components may result in collision between RPA and/or people, property or other active aircraft resulting in hazardous environment/harm.	• Compliance with cited CASA regulations as laid out in relevant legislations pertinent to class of operation. • Drones inspected prior to take off and only operated if they pass said inspection. • Operators undertake adequate training/instruction from suitably qualified instructors prior to take off. • Inexperienced operators supervised during flight activities.	Low Low Low

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Hazards Inspected	Initial Risk	Description of Risk	Control Measures	Residual Risk
• Intrusion into area of operation either by uninvited person/wildlife or as part of drone recovery. • If an accident occurs, recovery of the occupants of an aircraft or people on the ground depends on having appropriate equipment and rapid recovery.	Medium Medium	• May result in collision between RPA and /or people, property or other active aircraft resulting in hazardous environment/harm.	• In the event of intrusion of the area of operation RPA operators to navigate clear of intrusion and find safe landing position if required to avoid airspace compromises. • Operator to have and practice a recovery plan including the crash of RPA. • Operator to have an ability to quickly contact emergency services.	Low Low

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Hazards Inspected	Initial Risk	Description of Risk	Control Measures	Residual Risk
• Lack of remote pilot proficiency / experience leads to poor decision making resulting in potential traffic conflict, ground person accident, or loss of RPA.	Medium	• May result in collision between RPA and /or people, property or other active aircraft resulting in hazardous environment/harm.	• Remote Pilot is properly trained and licenced to conduct required by CASA and other agencies associated with the operation of the RPA. • Remote Pilot has sufficient experience to properly assess conditions and safely operate RPA in the conditions. • Student Operators are instructed/supervised in best practice RPA operation. • Remote Pilot has undergone any RPA-specific safety courses available. • Student Operators have a suitable training and checking system to ensure RPA is operated safely, with proper decision-making encouraged. • Use of appropriate documentation to track equipment and operator use. E.g. logbooks.	Low

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Hazards Inspected	Initial Risk	Description of Risk	Control Measures	Residual Risk
• Inadequate planning information leads to task failure, loss of RPA or unintended interaction with other traffic or people on the ground.	Medium	• May result in collision between RPA and /or people, property or other active aircraft resulting in hazardous environment/harm.	• Ballarat Tech School conducts pre-flight briefing and provides written details and planning material to help assure remote pilot and observers fully understand task requirements. • Ballarat Tech School coordinates with Operator and other organisations as required to assure proper location and support RPA operation. • Ballarat Tech School provide student operators with planning material and access to information to ensure the flight can be conducted safely while achieving the task objectives. • Ballarat Tech School provides guidance within operational documentation to student operators on the required pre-flight planning activities.	Low

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Hazards Inspected	Initial Risk	Description of Risk	Control Measures	Residual Risk
• Incorrect pre-flight system checks lead to compromise in safety.	Medium	• May result in collision between RPA and /or people, property or other active aircraft resulting in hazardous environment/harm.	• Operator has published checklists that conform to the Original Equipment Manufacturer publications. • Operator conducts training and checking to assure remote pilot conduct checks as published.	Low
• Poor navigation leads to RPA straying into wrong airspace, near people / obstacles (including wires) or not achieving task.	Medium		• Operator has training and checking to assure remote pilot plans and operates to a flight plan. • RPA has appropriate GPS-based navigation system and data transmission system installed. • Published procedures that ensure correct information is briefed to remote pilot before flight. • RPA equipped with obstacle avoidance sensors where possible.	Low

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Hazards Inspected	Initial Risk	Description of Risk	Control Measures	Residual Risk
• Mid-air collision between RPA and aircraft results in hazard to people in aircraft and people on the ground.	Medium	• May result in collision between RPA and /or people, property or other active aircraft resulting in hazardous environment/harm.	• Operator has training, checking systems and practices that ensure remote pilot is properly trained in communicating and identifying potential conflicting traffic. • Briefing informs pilot of any potential traffic in the area where this traffic may be known or planned.	Low
Hazards Inspected	**Initial Risk**	**Description of Risk**	**Control Measures**	**Residual Risk**

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Hazards Inspected	Initial Risk	Description of Risk	Control Measures	Residual Risk
• Pilot mishandles emergency or malfunction which leads to an accident.	Medium	• May result in collision between RPA and /or people, property or other active aircraft resulting in hazardous environment/harm.	• Operator has adequate published guidance and training to remote pilot on the handling of malfunctions and emergencies. • Remote pilot has specific training and experience for engaging emergency procedures. • Operator to ensure suitable and adequate records of pilot training is kept. • Operations generally conducted over areas that are clear of people and livestock. • Operator has proper systems and practices to ensure remote pilot can handle emergencies.	Low

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Hazards Inspected	Initial Risk	Description of Risk	Control Measures	Residual Risk
Indoor Airborne Activities	Low	• Indoor operation drones may result in exposure operators/onlookers to hazards. • However, they nature of micro drone operation means the likelihood and level of risk are both greatly reduced	• Indoor operation of Drones are excluded from CASA regulations however the above, mentioned controls relating to training and inspection should still be observed. • Indoor operation of Drones is restricted to operation of micro class (sub 250g) and should be fitted with propeller guards.	Very Low

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4. Risk Assessment Signoff		
Authorised By: Albert Ferguson	Signature: A-Ferguson	Date: 16/01/2024